

# Rotary Measuring Technology

## Absolute Multiturn Encoder with Profibus-DP interface

### Multiturn Type 9080 Profibus-DP



- Field bus interface: **PROFIBUS-DP**
- Hollow shaft up to Ø 28 or shaft Ø 12 mm
- Shock resistant up to 250 g
- Only 60 mm clearance needed
- Patented integrative technology®
- Very easy mounting of the hollow shaft version. The encoder is mounted directly on the drive shaft without coupling. This saves up to 30 % cost and 50 % clearance compared to shaft versions.
- Divisions: up to 8192 (13 bits) per revolution, 4096 (12 bits) revolutions
- Contactless multiturn gear with new Intelligent-Sensing-Technology (IST)
- Simply connection patent pending connecting system with removable socket box
- Integrated T-coupler
- Protection: IP 65
- available as explosion proof zone 2 and 22

#### Mechanical characteristics:

Speed: <sup>1)</sup>	max. 6000 min <sup>-1</sup>
Rotor moment of inertia:	appr. 72 x 10 <sup>-6</sup> kgm <sup>2</sup>
Starting torque hollow shaft version:	< 0,2 Nm
Starting torque shaft version:	< 0,05 Nm
Radial load capacity of shaft: <sup>2)</sup>	radial: 80 N, axial 40 N
Weight:	appr. 0,9 kg
Protection acc. to EN 60 529:	IP 65
Working temperature:	-10° C ... +70 °C
Operating temperature:	-10° C ... +80 °C
Shaft:	stainless steel
Shock resistance acc. to DIN-IEC 68-2-27	2500 m/s <sup>2</sup> , 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	100 m/s <sup>2</sup> , 10 ... 2000 Hz

<sup>1)</sup> for continuous operation 3000 min<sup>-1</sup>

<sup>2)</sup> shaft version only (at shaft end)



**Specification to Profibus-DP 2.0 standard (DIN 19245 Part 3)**

#### Electrical characteristics:

Supply voltage (U <sub>B</sub> ):	10 ... 30 V DC
Current consumption type:	max. 0,29 A
recommended fuse	T 0,315 A
Linearity	±1/2 LSB (± 1 LSB at 13, 14, 25 bit resolution)
Code	Binary
Interface	RS 485
Protocol	<b>Profibus-DP, encoder profile class 2</b>
Rate	max. 12 Mbit/s
Address	adjustable with DIP-switches
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3	
Performance against magnetic influence acc. to EN61000-4, 5	

#### Profibus Encoder-Profile:

The basic functions of the PROFIBUS DP are only described in extracts in here. For additional information, please refer to the standards on PROFIBUS DP, i.e. DIN 19245-3 and EN 50170 respectively or see page 35-

#### The following parameters can be programmed:

- Direction of rotation
- Scaling factor
  - number of pulse/rotation
  - total resolution
- Preset value
- Diagnostics mode

#### The following functionality is integrated:

- Galvanic insulation of the Fieldbus-stage- with DC/DC converter
- Line driver according to RS 485 max. 12 MB
- Addressing by means of rotary switches
- Diagnostics LED
- Full Class 1 and Class2 functionality

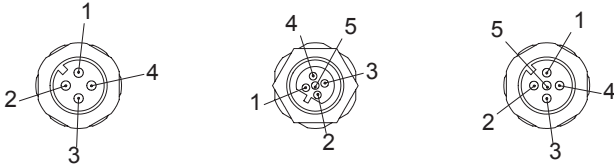


# Rotary Measuring Technology

## Absolute Multiturn Encoder with Profibus-DP interface

### Multiturn Type 9080 Profibus-DP

Terminal assignment M12 Connector version:



Supply voltage:

Signal :	$U_B$	-	0 V	-
Pin:	1	2	3	4

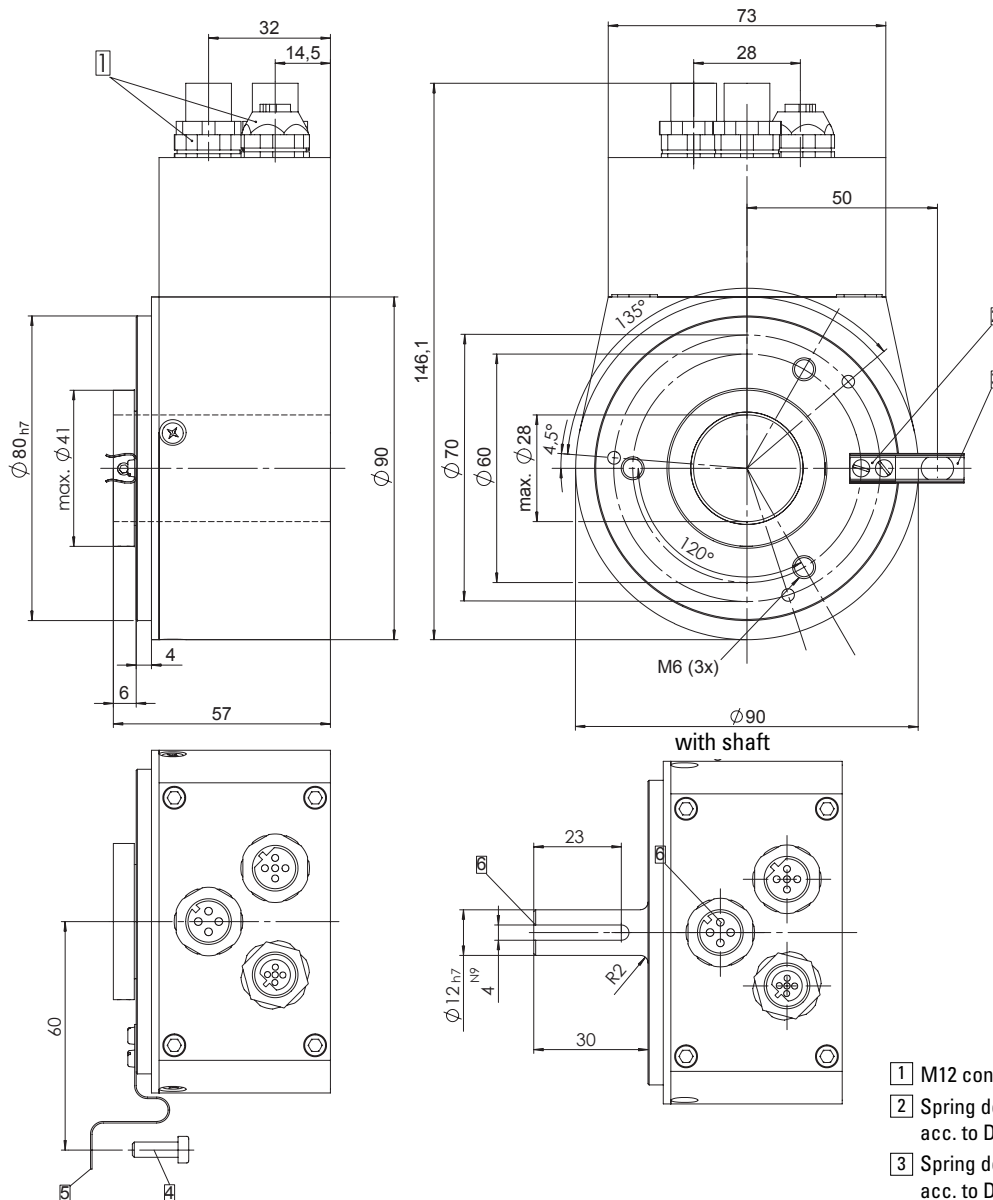
Bus in:

Signal :	-	BUS-A	-	BUS-B	-
Pin:	1	2	3	4	5

Bus out:

Signal :	BUS_VDC	BUS-A	BUS_GND	BUS-B	Shield
Pin:	1	2	3	4	5

Dimension (M12 connector version):



- 1 M12 connector
- 2 Spring device short (Flange No. 2) for pin acc. to DIN 6325  $\varnothing$  6
- 3 Spring device long (Flange No. 3) for pin acc. to DIN 6325  $\varnothing$  6
- 4 Slotted hole for screw M4
- 5 Mounting bracket (Flange No. 4)
- 6 2,5 mm deep

# Rotary Measuring Technology

## Absolute Multiturn Encoder with Profibus-DP interface

### Multiturn Type 9080 Profibus-DP

#### Integrative Technology®

Compact construction, higher resistance to shock and EMI together with greater reliability due to:

- Integration of all components on just one PCB board instead of a sandwich structure
- Innovative assembly techniques
- Use of self-balancing Opto ASICs instead of potentiometers

#### Intelligent-Sensing-Technologie (I-S-T)

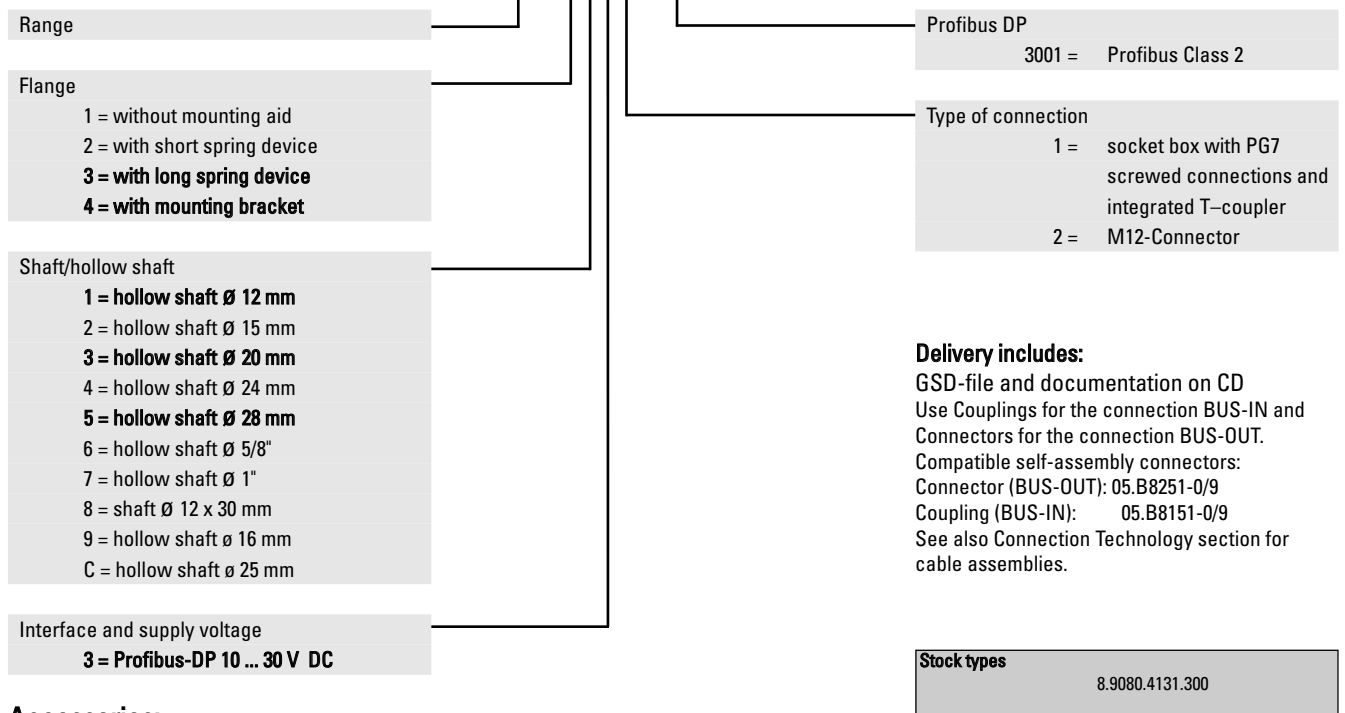
An innovative principle of operation based on a non-contact electronic multiturn stage overcomes system disadvantages previously associated with encoders that had mechanical gears or with traditional electronic gear technology.

#### Advantages:

- High operational reliability
- Logic filter and innovative principle of operation compensate for high EMC interference
- Free from wear

#### Order code:

8.9080.XXXX.XXXX



Range

Flange  
 1 = without mounting aid  
 2 = with short spring device  
**3 = with long spring device**  
**4 = with mounting bracket**

Shaft/hollow shaft  
**1 = hollow shaft Ø 12 mm**  
 2 = hollow shaft Ø 15 mm  
**3 = hollow shaft Ø 20 mm**  
 4 = hollow shaft Ø 24 mm  
**5 = hollow shaft Ø 28 mm**  
 6 = hollow shaft Ø 5/8"  
 7 = hollow shaft Ø 1"  
 8 = shaft Ø 12 x 30 mm  
 9 = hollow shaft Ø 16 mm  
 C = hollow shaft Ø 25 mm

Interface and supply voltage  
**3 = Profibus-DP 10 ... 30 V DC**

Profibus DP  
 3001 = Profibus Class 2

Type of connection  
 1 = socket box with PG7 screwed connections and integrated T-coupler  
 2 = M12-Connector

**Delivery includes:**  
 GSD-file and documentation on CD  
 Use Couplings for the connection BUS-IN and Connectors for the connection BUS-OUT.  
 Compatible self-assembly connectors:  
 Connector (BUS-OUT): 05.B8251-0/9  
 Coupling (BUS-IN): 05.B8151-0/9  
 See also Connection Technology section for cable assemblies.

**Stock types**  
 8.9080.4131.300

#### Accessories:

##### Mounting kit

Offers a wide variety of mounting options.

Complete kit  
 Order No. 8.0010.4A00.0000  
 The set includes the following individual items, which may also be ordered separately.  
 1 x parallel pin, long with fixing thread  
 1 x spring element, long  
 1 x spring element, short  
 2 x screws M2.5  
 Screw M4 x 10  
 Mounting bracket  
 Washer  
 For detailed drawings and further information, see Accessories section, page 235.

##### Flexible mounting bracket, large



**Includes:**  
 - Flexed spring element  
 - 3 mounting screws

Order No. 8.0010.4E00.000

See page 237 for more details